

# Minutes IEEE P802.3cy Greater than 10 Gb/s Electrical Automotive Ethernet PHY TF AdHoc meeting June 1, 2021

Prepared by Natalie Wienckowski

## Proposed Agenda:

Title	Presenters(s)	Affiliation(s)
Agenda	Natalie Wienckowski (ad hoc Chair)	General Motors
TF Chair's Comments	Steve Carlson	High Speed Design, Robert Bosch GmbH, Ethernovia
<u>Simulation results for an AWG 24 SPP</u>	Erwin Koeppendoerfer	LEONI Kabel GmbH
<u>Insertion Loss Margin Evaluation</u>	Eric DiBiaso Emilio Cuesta	TE Connectivity
P802.3cy To-do list	Natalie Wienckowski	General Motors
Closing Remarks	Steve Carlson	High Speed Design, Robert Bosch GmbH, Ethernovia

[See adhoc webpage for agenda deck and presentations](#)

## Agenda/Admin Natalie Wienckowski as ad hoc chair:

Meeting began at 10:03 am ET.

## Introductions & Affiliations.

### Presented file: [cy Task Force adhoc agenda 06 01 21.pdf](#)

1. Reviewed the Attendance information related to the ad hoc.
2. Displayed patent slide deck and asked if any participant had not read the IEEE-SA Patent Slides slide set, none responded.  
Call for Patents was made at 10:08 am Eastern Time, none responded
3. Displayed the IEEE-SA Copyright policy slide and asked if any participant had not read the IEEE copyright slide set, none responded.
4. Displayed the IEEE-SA Participation slide and reviewed it.
5. Reminded participants to indicate full names and employer/affiliation for the meeting minutes.

Instructions for subscribing to the reflector may be found at <http://www.ieee802.org/3/cy/reflector.html>. If you cannot subscribe to the reflector for some reason, and need additional assistance please contact the Task Force chair.

**Chair's comments:** None at this time.

## **Presentations/Discussion:**

### **Presentation: [Simulation results for an AWG 24 SPP](#) (Erwin Koependoerfer, LEONI Kabel GmbH)**

Erwin presented simulation data on 10m of AWG24 shielded pair cable that was scaled to 11m. He also presented measured data on 9m of AWG26 shielded pair cable. He showed how these compare to the limit line proposed in [802.3cy link segment insertion loss](#). This shows that the proposed limit is reasonable.

There was a question if the AWG24 cable would require different connectors than the AWG26. The answer was that the connector could be the same, but the connection to the wires may need to be modified slightly, but this would be a minor change.

There was a question as to whether AWG22 could be considered. This is generally too large in a shielded pair to be easily installed/used in a vehicle.

The cable had the least amount of margin at frequencies below 2 GHz, this was seen in the 2<sup>nd</sup> presentation as well. There was no issue seen with increasing the limit line below 2 GHz. Erwin and Thomas will look at this and make a proposal at a future meeting.

### **Presentation: [Insertion Loss Margin Evaluation](#) (Eric DiBiasco & Emilio Cuesta, TE Connectivity)**

Eric presented data on a new 11m 24AWG solid conductor cable at room temperature. The curves presented are based on measured data with 2 in-line connectors added and the PCB connectors removed.

He also presented data with the entire cable at 105 °C.

He showed data on heat aging of a cable which was about 2 dB. It was mentioned that not all cables show any change in performance after heat aging. This depends on the construction and materials of the cable.

This cable shows that the IL proposed in [802.3cy link segment insertion loss](#) is reasonable.

In general, automotive users require stranded cable. Stranded cable may have slightly larger IL than solid conductors.

This cable shows a suck-out around 7.5GHz. The s4p data will be shared for analysis on the impact of the suck-out above the expected Nyquist frequency (assumes PAM4). There was a question on how the suck-

out can change with temperature and aging. It is expected that the center frequency may shift slightly or the magnitude of the dip may change, but the “width” of the suck-out is not likely to change.

## **Presentation: [P802.3cy To-do list usage](#) (Natalie Wienckowski, General Motors)**

The to-do list was reviewed and updated. Participants are urged to review the list for topics they can support and for missing topics. Please send a message to the reflector with requested changes to the list.

The current list can be found on this page: [To Do spreadsheets](#)

## **Closing Discussion**

Thanks to Erwin, Eric, and Emilio for their work to provide additional cable data.

The goal is to finalize the link segment and PCB IL and RL limit lines during the July plenary. Data is expected later this month to facilitate this.

The July 6<sup>th</sup> meeting has been cancelled to allow for a “moratorium” on IEEE802.3 meetings the week before the July Plenary, July 5<sup>th</sup> through the 9<sup>th</sup>.

Meeting adjourned at 11:22 AM ET.

## **Attendees (download participant list, email)**

<b>First</b>	<b>Last</b>	<b>Affiliation</b>
Brett	McClellan	Marvell
Christian	Neulinger	MD Elektronik
Curtis	Donahue	Rohde & Schwarz)
Dave	Hess	Cord Data
Emilio	Cuesta	TE Connectivity
Eric	DiBiaso	TE Connectivity
Erwin	Köeppendörfer	Leoni Kabel GmbH
Fred	Dawson	Chemours
George	Zimmerman	CME Consulting / ADI, APL Group, Cisco Systems, CommScope, Marvell, SenTekSe
German	Feyh	Broadcom
Harsh	Patel	Molex
Haysam	Kadry	Ford
Hossein	Sedarat	Ethernovia
J.	Nachtrab	Leoni
Jae-yong	Chang	Keysight
Jonathan	Silvano de Sousa	GG - Austria

<b>First</b>	<b>Last</b>	<b>Affiliation</b>
Keisuke	Kawahara	FURUKAWA ELECTRIC
Louise	Yi	FIT
Luisma	Torres	KDPOF
Makoto	Nariya	Sony
Natalie	Wienckowski	General Motors
Nobuyasu	Araki	Yazaki
Peter	Wu	Marvell
Ragnar	Jonsson	Marvell
Rich	Boyer	Aptiv
Sanaz	Mortazavi	VW
Shao-Chieh	Yu	FIT
Steve	Carlson	High Speed Design, Robert Bosch GmbH, Ethernovia
Sujan	Pandey	Huawei
Taiji	Kondo	MegaChips
Terry	Little	Foxconn Interconnect Technology
Thomas	Müller	Rosenberger
Tom	Souvignier	Broadcom
Yoshihiro	Niihara	Fujikura Ltd.
Yusuke	Yano	NI Tech
<b>TOTAL</b>	<b>35</b>	<b>Attendees</b>